

# **Botanical Survey—Private Access Easement Road Corridor Southwestern San Luis Obispo County, California**

**Prepared for:**

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**by**

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**Introduction**—Excelaron LLC has proposed reactivating four (4) oil wells in the Huasna Valley oil fields south of Arroyo Grande, in the southwestern part of San Luis Obispo County, California. The original proposed route for trucks transporting oil from these wells traveled on Huasna Townsite Road, to Huasna Road, through the City of Arroyo Grande, and ultimately to U.S. Route 101. Based upon public comment, an alternative route has been chosen and is the subject of this report. Excelaron LLC has changed the project description to reflect an alternative route that now includes travel on Huasna Townsite Road to a private access easement, on to Alamo Creek Road, to State Route 166, and ultimately south on Highway 101. The focus of this survey is the area likely to be impacted by the truck traffic along the existing roadway/private access easement.

The existing private easement road is 6.1–6.2 miles long. Road widths vary from 15 to 18 feet with areas of disturbance adjacent to the roadway (i.e., roadway shoulders) due to agricultural operations and grazing. Minor road improvements will consist of applying gravel to dirt sections of the road, re-graveling areas previously graveled, and application of an EPA certified dust suppressant. Based upon CalFire requirements, turnouts will be installed every ½(.5) mile. Turnouts will be installed and graveled in previously disturbed locations adjacent to the existing roadway. Please see Enclosure A. Turnouts will generally require an area of approximately 12 x 30 feet. Any overhanging tree limbs will be pruned to California Department of Forestry and Fire Protection standards. Operations, including all project related traffic on the private access road, will cease during periods of flooding or periods when the road is impassable due to inclement weather.

**Methods**—A botanical survey was carried out on August 29, 2008 of the proposed oil truck transport route along the private access easement from just south of the Huasna Creek Bridge to the intersection of the private access easement with Alamo Creek Road. The focus of the survey was to observe the vegetation and plant species occurring in a corridor bordering this easement to a distance of 10 feet on either side of the road. The field survey consisted of travel by automobile as a part of a car caravan at a slow speed

along the private easement road, with occasional stops that provided opportunities to examine plants at close hand. A record was made of the plant species observed in identifiable condition. Specimens of the plants were gathered to confirm identifications. Abbreviated notes were made of the plant communities and habitats traversed during the survey, but because the focus was on species identifications, community observations are non-quantitative and brief.

**Results**—A total of 92 plant species were recorded during the survey (Table 1). However, it is very important to note that this is by no means a complete list of the plants present on the property. Plant species composition, especially herbaceous cover, varies seasonally and annually. Because of the timing of this survey—late summer in a year in which seasonal precipitation was essentially complete at the end of February—many herbaceous plant species were not in identifiable condition. Some spring-flowering herbs were represented by identifiable dry remains of the spring season's standing crop, but many were completely dry and shattered beyond recognition. Other species may have been absent entirely because of the brevity of the 2007–2008 rainy season. In addition, because of the methods used in the survey, some species present along the survey corridor were unavoidably overlooked.

Additional limitations imposed by the survey methods and timing must also be considered. In years with high precipitation, Twitchell Reservoir can inundate portions of the road or roadside corridor. At high water stand, some wetland species or wetland border species would be expected to occur in the 10-foot roadside corridor. With the current dry conditions, these species are absent.

One plant of special concern was encountered during the survey. *Deinandra increscens* subsp. *foliosa* (leafy tarplant) was observed in open foothill woodland near the center of the transect. In the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (<http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>), leafy tarplant is placed on List 1B (Plants Rare and Endangered in California and Elsewhere with a sublisting of 0.2: Fairly Endangered in California). This plant is not listed as rare, endangered, or threatened by the State of California or as threatened or endangered by the U.S. Fish and Wildlife Service. Leafy tarplant is a California endemic, known only from southwestern San Luis Obispo and northwestern Santa Barbara counties. A few individuals were noted in the private easement road disturbance corridor, and numerous additional plants were observed in the foothill woodland to the north of the road outside the area surveyed. An individual of this subspecies was collected to verify the identification.

No other species of concern were observed on this private easement corridor. Most of the sensitive species found in an on-line nine-quad search of the area around the private access easement (Table 2) are plants, that on the basis of habitat, would not be expected to occur on the easement or that would have been noticed had they been present. The few that cannot be ruled out are taxa that are not likely to be recognizable in a late summer survey. It should be noted, though, that leafy tarplant, which was found on site, was not previously known from the topo quad where it was found, a consequence of the lack of access botanists have had to the area surveyed. A seasonally appropriate survey

would be required to determine if any of the other sensitive taxa are actually presenting the private easement corridor. The nine-quad search returned a list of plants from the CNPS Lists 1–3; it does not include additional taxa that are included by CNPS on List 4 (Plants of Limited Distribution).

**Plant Communities**—The area traversed by the private easement road has flat to gently sloping terrain with the exception of a hillier area in the eastern quarter of the route. Elevations range from 615 to 650 feet over most of the route to about 870 feet in the hilly eastern portion. The following plant communities were encountered along the survey corridor: open foothill woodland, grassland, coastal live oak woodland, and areas of anthropogenic disturbance (ruderal, agricultural fields crops, and cultivated ground). Additionally a few small summer-dry watercourses traversed the road with only minimal wetland influence.

Foothill woodland—The principal tree species in these communities are *Quercus agrifolia* (coast live oak) and *Quercus lobata* (valley oak). These trees are mostly widely scattered with a grass-dominated understory. A few oaks occur within the private easement road corridor or have branches that overarch the road. The grasses and associated species are discussed below under grassland. Foothill woodlands and associated grasslands occupy most of the non-cultivated area traversed by the western three quarters of the private easement.

Grasslands bordering the private easement road are dominated for the most part by annual species of Mediterranean origin such as species of *Avena* (wild oats), *Bromus* (bromes), *Hordeum* (wild barley). Native grasses such as *Leymus triticoides* (beardless wild rye) occur in some areas. Forbs present in the grass-dominated areas include various spring-flowering annuals, most of which were completely dry skeletons or mostly shattered at the time of the summer survey. Hardy summer-flowering annuals observed along the route included *Deinandra increscens* subsp. *foliosa* (leafy tarplant), *Eremocarpus setigerus* (turkey-mullein), and *Trichostemma lanceolatum* (vinegar weed). In addition the disturbance corridor along the road included a variety of weed species such as *Hirschfeldia incana* (perennial mustard) and *Raphanus sativus* (wild radish).

Steeper north-facing slopes in the eastern quarter of the route support a dense woodland dominated largely by *Quercus agrifolia* (coast live oak). This is in part a closed-canopy community with an understory of shade-tolerant herbs and shrubs. Ferns occur on the shaded slopes, and the dry remains of spring-flowering wildflowers were observed there as well. The branches of some of the oaks arch over the private easement road, shading it and the roadside corridor.

**Disturbances**—Cultivated ground occupies a large portion of the western part of the private easement road corridor. Crop plants were observed in these fields along with an assortment of common agricultural weeds. Native species are largely absent from the areas that have a history of cultivation or that are currently in cultivated agriculture.

Roadside areas are corridors of disturbance and typically support altered plant communities. Since the area of the survey is a 10-foot-wide corridor on each side of

private easement road, the assortment of plants encountered there includes a higher proportion of weeds than occur in less disturbed areas further from the road. The high number of introduced herbaceous plant species in Table 1 is an indication of the roadside effect. Vegetation dominated by weedy species is often categorized as a ruderal plant community.

Non-farmed portions of the property crossed by the private easement road are used as grazing land with free-ranging cattle. Impacts of cattle on grazing land include consumption of edible plant matter, defecation, trampling, and soil compaction. At times of high water or wet soils bottomland areas are commonly pockmarked by cattle footprints. Cattle also serve as agents of dissemination for plants, especially weedy species, and the various cattle-induced disturbances create habitats for weedy plants. All these effects were observed during the field survey.

**Impacts of the Project**—The road improvements described above and the use of the private road easement as a route for oil transport vehicles are expected to have minimal impacts on the plant species and plant communities within and adjacent to the road corridor. The roadside corridor has already been disturbed by the original construction, daily travel, and subsequent maintenance of the private easement road. This is reflected in the greater number of weedy species and their prevalence in the corridor relative to adjacent less disturbed areas. New disturbances associated with road improvements will include removal of plants currently growing in the newly graveled roadside turnouts and consequent minor reduction of available plant habitat. Although EPA-approved dust suppressants are to be used in conjunction with road improvement and maintenance, plants in the immediate roadside area may be subject to increased dust associated with the oil transport truck traffic. Tree trimming, if required, may result in reduced shade in some wooded areas, thereby increasing transpiration stress on understory plants and perhaps a localized shift in species composition from shade-tolerant to shade-intolerant species.

**Recommendations**—Because of the possible occurrence of some sensitive plant species (Table 2) that, if present, would not have been identifiable at the time of the late summer survey, a seasonally appropriate spring survey of the private easement road corridor should be carried out by a qualified botanist. Any tree trimming that is necessary to bring the roadway into compliance with CalFire standards should be carried out under the supervision of a qualified botanist (see recommendations in Oak Trees and Creek Crossing report prepared by V.L. Holland).

**Table 1.** List of plants identified during driving transect of private easement road, southern San Luis Obispo County, California, 29 August 2008.

SCIENTIFIC NAME	COMMON NAME	FAMILY	PROVENANCE
<b>Trees</b>			
<i>Quercus agrifolia</i>	Coast live oak	Fagaceae	Native
<i>Quercus lobata</i>	Valley oak	Fagaceae	Native
<b>Shrubs</b>			

SCIENTIFIC NAME	COMMON NAME	FAMILY	PROVENANCE
<i>Artemisia californica</i>	California sagebrush	Asteraceae	Native
<i>Baccharis pilularis</i>	Coyote bush	Asteraceae	Native
<i>Baccharis salicifolia</i>	Mule fat	Asteraceae	Native
<i>Galium porrigens</i>	Climbing bedstraw	Rubiaceae	Native
<i>Hazardia squarrosa</i>	Saw-toothed goldenbush	Asteraceae	Native
<i>Keckiella cordifolia</i>	Climbing penstemon	Scrophulariaceae	Native
<i>Lepidospartum squamatum</i>	Scale broom	Asteraceae	Native
<i>Lupinus albifrons</i>	Bush lupine	Fabaceae	Native
<i>Marrubium vulgare</i>	Horehound	Lamiaceae	Introduced
<i>Opuntia phaeacantha</i>	prickly pear cactus	Cactaceae	Native
<i>Phoradendron villosum</i>	Oak mistletoe	Viscaceae	Native
<i>Rhamnus californica</i>	Coffee-berry	Rhamnaceae	Native
<i>Rosa californica</i>	Rose	Rosaceae	Native
<i>Salix lasiolepis</i>	Arroyo willow	Salicaceae	Native
<i>Salvia leucophylla</i>	Purple sage	Lamiaceae	Native
<i>Salvia mellifera</i>	Black sage	Lamiaceae	Native
<i>Sambucus mexicana</i>	Elderberry	Caprifoliaceae	Native
<i>Symphoricarpos mollis</i>	Snowberry	Caprifoliaceae	Native
<b>Herbs</b>			
<i>Adiantum jordanii</i>	Maidenhair fern	Pteridaceae	Native
<i>Amaranthus albus</i>	Amaranth	Amaranthaceae	Introduced
<i>Amaranthus sp.</i>	Amaranth	Amaranthaceae	Introduced?
<i>Ambrosia psilostachya</i>	Western ragweed	Asteraceae	Native
<i>Amsinckia sp.</i>	Fiddleneck	Boraginaceae	Native
<i>Artemisia dracunculus</i>	Wild tarragon	Asteraceae	Native
<i>Asclepias eriocarpa</i>	Milkweed	Asclepiadaceae	Native
<i>Asclepias fascicularis</i>	Milkweed	Asclepiadaceae	Native
<i>Avena barbata</i>	Slender wild oats	Poaceae	Introduced
<i>Baccharis douglasii</i>	Marsh baccharis	Asteraceae	Native
<i>Bromus carinatus</i>	Brome grass	Poaceae	Native
<i>Bromus diandrus</i>	Ripgut brome	Poaceae	Introduced
<i>Bromus hordeaceus</i>	Soft chess brome grass	Poaceae	Introduced
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae	Introduced
<i>Centaurea melitensis</i>	Tocolote	Asteraceae	Introduced
<i>Centaurea solstitialis</i>	Yellow star-thistle	Asteraceae	Introduced
<i>Chenopodium sp.</i>	Goosefoot	Chenopodiaceae	Introduced
<i>Cirsium vulgare</i>	Bull thistle	Asteraceae	Introduced
<i>Collinsia heterophylla</i>	Chinese houses	Scrophulariaceae	Native
<i>Conium maculatum</i>	Poison hemlock	Apiaceae	Introduced
<i>Conyza canadensis</i>	Horseweed	Asteraceae	Introduced
<i>Corethrogyne filaginifolia</i> var. <i>filaginifolia</i>	California-aster	Asteraceae	Native
<i>Cuscuta sp.</i>	Dodder	Cuscutaceae	Native
<i>Cynodon dactylon</i>	Bermuda grass	Poaceae	Introduced
<i>Deinandra increscens</i>	Leafy tarplant	Asteraceae	Native

SCIENTIFIC NAME	COMMON NAME	FAMILY	PROVENANCE
subsp. <i>foliosa</i>			
<i>Dichelostemma capitatum</i>	Blue dicks	Liliaceae	Native
<i>Distichlis spicata</i>	Salt grass	Poaceae	Native
<i>Dryopteris arguta</i>	Wood fern	Dryopteridaceae	Native
<i>Elymus glaucus</i>	Blue wild rye	Poaceae	Native
<i>Epilobium canum</i>	California-fuchsia	Onagraceae	Native
<i>Eremocarpus setigerus</i>	Turkey mullein	Euphorbiaceae	Native
<i>Erigeron foliosus</i> var. <i>foliosus</i>	Fleabane daisy	Asteraceae	Native
<i>Euthamia occidentalis</i>	Western goldenrod	Asteraceae	Native
<i>Foeniculum vulgare</i>	Fennel	Apiaceae	Introduced
<i>Glycyrrhiza lepidota</i>	Wild licorice	Fabaceae	Native
<i>Heliotropium curassavicum</i>	Heliotrope	Boraginaceae	Native
<i>Heterotheca grandiflora</i>	Telegraph weed	Asteraceae	Native
<i>Hirschfeldia incana</i>	Perennial mustard	Brassicaceae	Introduced
<i>Hordeum murinum</i>	Foxtail barley	Poaceae	Introduced
<i>Lactuca serriola</i>	Prickly lettuce	Asteraceae	Introduced
<i>Lagophylla ramosissima</i>	Lagophylla	Asteraceae	Native
<i>Leymus condensatus</i>	Giant wild-rye	Poaceae	Native
<i>Leymus triticoides</i>	Beardless wild-rye	Poaceae	Native
<i>Lolium multiflorum</i>	Ryegrass	Poaceae	Introduced
<i>Lotus purshianus</i>	Spanish-clover	Fabaceae	Native
<i>Lupinus nanus</i> ?	Sky lupine	Fabaceae	Native
<i>Madia gracilis</i>	Slender tarweed	Asteraceae	Native
<i>Malva</i> sp.	Mallow	Malvaceae	Introduced
<i>Medicago sativa</i>	Alfalfa	Fabaceae	Introduced
<i>Melica imperfecta</i>	Melic grass	Poaceae	Native
<i>Monardella villosa</i>			
subsp. <i>obispoensis</i>	Coyote mint	Lamiaceae	Native
<i>Navarretia</i> sp.	Navarretia	Polemoniaceae	Native
<i>Nicotiana</i> sp.	Wild tobacco	Solanaceae	Native
<i>Piptatherum miliaceum</i>	Smilo	Poaceae	Introduced
<i>Plagiobothrys</i> sp.	Popcorn flower	Boraginaceae	Native
<i>Polygonum arenastrum</i>	Knotweed	Polygonaceae	Introduced
<i>Portulaca oleracea</i>	Purslane	Portulacaceae	Introduced
<i>Potentilla glandulosa</i>			
subsp. <i>glandulosa</i>	Sticky cinquefoil	Rosaceae	Native
<i>Raphanus sativus</i>	Wild radish	Brassicaceae	Introduced
<i>Rumex acetosella</i>	Sour dock	Polygonaceae	Introduced
<i>Rumex crispus</i>	Curly dock	Polygonaceae	Introduced
<i>Sanicula</i> sp.	Sanicle	Apiaceae	Native
<i>Sanicula tuberosa</i>	Turkey-pea	Apiaceae	Native
<i>Silybum marianum</i>	Milk-thistle	Asteraceae	Introduced
<i>Sorghum halepense</i>	Johnson grass	Poaceae	Introduced
<i>Spergularia</i> sp.	Sand-spurry	Caryophyllaceae	native/introduced
<i>Torilis arvensis</i>	Hedge-parsley	Apiaceae	Introduced

SCIENTIFIC NAME	COMMON NAME	FAMILY	PROVENANCE
<i>Trichostemma lanceolatum</i>	Vinegar weed	Lamiaceae	Native
<i>Urtica dioica</i> subsp.. <i>holosericea</i>	Stinging nettle	Urticaceae	Native
<i>Verbena lasiostachys</i>	Vervain	Verbenaceae	Native
<i>Xanthium spinosum</i>	Clotbur	Asteraceae	Native
<i>Xanthium strumarium</i>	Cocklebur	Asteraceae	Introduced

**Table 2.** Species of Rare and Endangered Plants in nine-quad survey centered on Nipomo Quadrangle<sup>1</sup>. List generated from California Native Plant Society's on-line Inventory of Rare and Endangered Plants of California.

Taxon, common name, family, and CNPS rarity status	Comments on likelihood of taxon occurring along private easement road
<i>Agrostis hooveri</i> Hoover's bent grass Poaceae List 1B.2	Not observed. Possibly present in coastal live oak woodland.
<i>Arctostaphylos luciana</i> Santa Lucia manzanita Ericaceae List 1B.2	Not observed; would have been readily apparent if present. No suitable habitat.
<i>Arctostaphylos pilosula</i> Santa Margarita manzanita Ericaceae List 1B.2	Not observed; would have been readily apparent if present. Possible suitable habitat in woodland areas away from road.
<i>Arctostaphylos rudis</i> sand mesa manzanita Ericaceae List 1B.2	Not observed; would have been readily apparent if present. No suitable habitat.
<i>Arctostaphylos wellsii</i> Wells' manzanita Ericaceae List 1B.1	Not observed; would have been readily apparent if present. Possible suitable habitat in woodland areas away from road.
<i>Arenaria paludicola</i> marsh sandwort Caryophyllaceae List 1B.1	Not observed. Wetland species. No suitable habitat.

<sup>1</sup> **Quad Selection:** Nipomo (220C) 3512014, Twitchell Dam (195A) 3412083, Santa Maria (195B) 3412084, Oceano (221D) 3512015, Arroyo Grande NE (221A) 3512025, Guadalupe (196A) 3412085, Huasna Peak (220D) 3512013, Caldwell Mesa (220A) 3512023, Tar Spring Ridge (220B) 3512024.

Taxon, common name, family, and CNPS rarity status	Comments on likelihood of taxon occurring along private easement road
<b><i>Astragalus didymocarpus</i> var. <i>milesianus</i></b> Miles' milk-vetch Fabaceae List 1B.2	Not observed. Annual plant not likely to be recognizable in late summer survey. Potential habitat present in foothill woodland and grassland.
<b><i>Atriplex serenana</i> var. <i>davidsonii</i></b> Davidson's saltscale Chenopodiaceae List 1B.2	Not observed. Summer active annual that would be recognizable at time of summer survey. No suitable habitat for this sea bluff race. Closely related var. <i>serenana</i> not observed but possibly present in disturbed areas near road.
<b><i>Calochortus obispoensis</i></b> San Luis mariposa lily Liliaceae List 1B.2	Not observed. Spring- to early summer-flowering perennial herb potentially identifiable from dry fruit capsules in late summer survey. No suitable habitat (serpentine, tar sands) observed along survey route.
<b><i>Calochortus palmeri</i> var. <i>palmeri</i></b> Palmer's mariposa lily Liliaceae List 1B.2	Not observed. Spring- to early summer-flowering perennial herb potentially identifiable from dry fruit capsules in late summer survey. Potential habitat present in dry stream beds near road.
<b><i>Calystegia subacaulis</i> subsp. <i>episcopalis</i></b> Cambria morning-glory Convolvulaceae List 1B.2	Not observed. Spring- to early summer-flowering perennial herb likely to be unidentifiable in late summer survey. Potential habitat present in clay-rich valley soils in foothill woodland or grassland near road.
<b><i>Castilleja densiflora</i> subsp. <i>obispoensis</i></b> San Luis Obispo owl's-clover Scrophulariaceae List 1B.2	Not observed. Spring-flowering annual herb likely to be unidentifiable in late summer survey. Potential habitat present in foothill woodland or grassland near road.
<b><i>Chorizanthe breweri</i></b> Brewer's spineflower Polygonaceae List 1B.3	Not observed. Spring to early summer-flowering annual herb likely to be unidentifiable in late summer survey. No suitable habitat (serpentine-derived soils) observed along route.
<b><i>Chorizanthe rectispina</i></b> straight-awned spineflower Polygonaceae List 1B.3	Not observed. Spring to early summer-flowering annual herb likely to be unidentifiable in late summer survey. No suitable habitat (chaparral on sandstone) observed along route.
<b><i>Cirsium loncholepis</i></b> La Graciosa thistle Asteraceae List 1B.1	Not observed. Wetland species. No suitable habitat.
<b><i>Cirsium rhotophilum</i></b> Surf thistle Asteraceae List 1B.2	Not observed. Beach species. No suitable habitat.



Taxon, common name, family, and CNPS rarity status	Comments on likelihood of taxon occurring along private easement road
<i>Cladium californicum</i> California sawgrass Cyperaceae List 2.2	Not observed. Wetland species. No suitable habitat.
<i>Clarkia speciosa subsp. immaculata</i> Pismo clarkia Onagraceae List 1B.1	Not observed. Spring to early summer-flowering annual herb potentially identifiable from dry fruit capsules in late summer survey. Potential suitable habitat in foothill woodland or coastal live oak woodland, but it is more likely to occur on sandy soils.
<i>Corethrogyne leucophylla</i> branching beach aster Asteraceae List 3.2	Not observed. Spring to summer-flowering perennial herb. Species of sea bluffs and beaches. No suitable habitat. Closely related <i>Corethrogyne filaginifolia</i> was observed on site and a specimen was collected for verification.
<i>Deinandra increscens subsp. foliosa</i> leafy tarplant Asteraceae List 1B.2	Present in identifiable condition in foothill woodland in middle of survey route. A few individuals present in road corridor; many more in adjacent fields. Summer-flowering annual herb. A specimen was collected for verification.
<i>Deinandra increscens subsp. villosa</i> Gaviota tarplant Asteraceae List 1B.1	Not observed. A summer-flowering plant that would be identifiable if present. The closely related subsp. <i>foliosa</i> was observed along survey route (see above). No suitable habitat present for this plant.
<i>Delphinium parryi subsp. blochmaniae</i> dune larkspur Ranunculaceae List 1B.2	Not observed. Perennial herb potentially identifiable to genus or possibly to species from dry fruit capsules in late summer survey. No species of <i>Delphinium</i> was observed during survey. Suitable habitat for this plant of stabilized dunes is not present along the road corridor.
<i>Delphinium umbraculorum</i> umbrella larkspur Ranunculaceae List 1B.3	Not observed. Perennial herb potentially identifiable to genus or possibly to species from dry fruit capsules in late summer survey. No species of <i>Delphinium</i> was observed during survey. Potential habitat is present in foothill woodland or grassland along the road corridor.
<i>Dithyrea maritima</i> beach spectaclepod Brassicaceae List 1B.1	Not observed. Annual herb of beaches and dunes. No suitable habitat.
<i>Dudleya abramsii subsp. murina</i> mouse-gray dudleya Crassulaceae List 1B.3	Not observed. Spring- to early summer-flowering perennial herb potentially identifiable from shriveled leaves and dry fruit capsules in late summer survey. No suitable habitat (serpentine outcrops) observed along survey route.

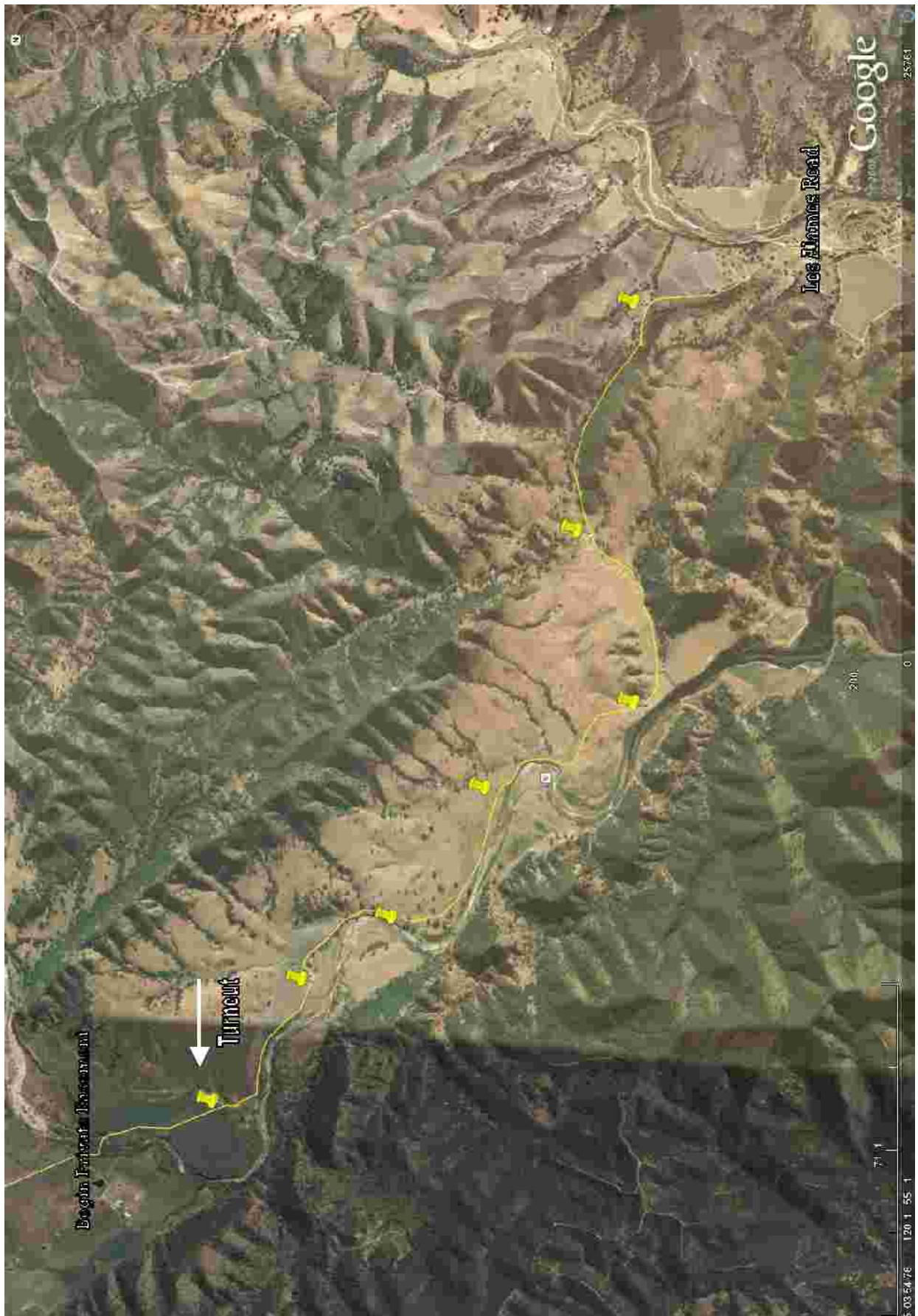
Taxon, common name, family, and CNPS rarity status	Comments on likelihood of taxon occurring along private easement road
<i>Erigeron blochmaniae</i> Blochman's leafy daisy Asteraceae List 1B.2	Not observed. Spring to summer-flowering perennial herb. Related <i>Erigeron foliosus</i> var. <i>foliosus</i> was observed in coastal live oak woodland. Suitable habitat for this plant of active and stabilized dunes is not present along the road corridor.
<i>Horkelia cuneata</i> subsp. <i>puberula</i> mesa horkelia Rosaceae List 1B.1	Not observed. Spring-flowering perennial herb likely to be unrecognizable in late summer survey. Potential suitable habitat in foothill woodland or coastal live oak woodland, but it is more likely to occur on sandy soils.
<i>Horkelia cuneata</i> subsp. <i>sericea</i> Kellogg's horkelia Rosaceae List 1B.1	Not observed. Spring-flowering perennial herb likely to be unrecognizable in late summer survey. Potential suitable habitat in foothill woodland or coastal live oak woodland, but it is more likely to occur on sandy soils.
<i>Lupinus ludovicianus</i> San Luis Obispo County lupine Fabaceae List 1B.2	Not observed. Perennial herb likely to be unrecognizable in late summer survey. Potential suitable habitat in foothill woodland or coastal live oak woodland.
<i>Lupinus nipomensis</i> Nipomo Mesa lupine Fabaceae List 1B.1	Not observed. Annual herb likely to be unrecognizable in late summer survey. No suitable habitat (open loose sands) present along the survey corridor.
<i>Monardella crispera</i> crisp monardella Lamiaceae List 1B.2	Not observed. Spring to summer-flowering perennial herb or subshrub. Related <i>Monardella villosa</i> subsp. <i>obispoensis</i> was observed in coastal live oak woodland. Suitable habitat for this plant of active and stabilized dunes is not present along the road corridor.
<i>Monardella frutescens</i> San Luis Obispo monardella Lamiaceae List 1B.2	Not observed. Spring to summer-flowering perennial herb or subshrub. Related <i>Monardella villosa</i> subsp. <i>obispoensis</i> was observed in coastal live oak woodland. Suitable habitat for this plant of active and stabilized dunes is not present along the road corridor.
<i>Nasturtium gambelii</i> Gambel's water cress Brassicaceae List 1B.1	Not observed. Wetland species. No suitable habitat.
<i>Scrophularia atrata</i> black-flowered figwort Scrophulariaceae List 1B.2	Not observed. Spring to early summer-flowering perennial herb likely to be recognized to genus from dried fruit capsules. Potential suitable habitat in foothill woodland or coastal live oak woodland, but it is more likely to occur on sandy soils.

Taxon, common name, family, and CNPS rarity status	Comments on likelihood of taxon occurring along private easement road
<i>Symphyotrichum defoliatum</i> San Bernardino aster Asteraceae List 1B.2	Not observed. Summer-flowering perennial herb. No species of <i>Symphyotrichum</i> was observed during field survey. Potential suitable habitat in foothill woodland or coastal live oak woodland

### References

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Enclosure A



## Mitigation for Leafy Tarplant

Roadside mowing for fire prevention may be recommended for use in some areas along the private easement road. Leafy tarplant is a summer flowering member of the foothill woodland community, and a few of the individuals of this taxon were observed in the 10-foot roadside border area along the road. Many more individuals occurred outside the 10-foot strip. The area where the tarplant occurs is open rangeland grazed by cattle. I recommend as mitigation that the roadside where the tarplant occurs not be mowed.

Because its herbage is distasteful to herbivores, cattle generally avoid the tarplants while consuming the more palatable forage. Adequate mitigation for the tarplant would be to let cattle eat the grasses in the roadside areas where it occurs rather than mowing these areas. If in a wet year with tall grasses common in the roadside area it is deemed necessary to mow the roadside area where these plants occur, I recommend that the mowing occur in late spring while the tarplants are immature so that they may resprout from lower nodes and then grow to reproductive maturity. They should not be mowed at the height of summer when damage would likely prevent them from recovery.

David J. Keil, Ph.D.  
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